

# *Plectranthus amoenus* and *P. thalassoscopicus* (Lamiaceae), new species from north-eastern Queensland, Australia

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## Summary

Forster, Paul I. (1997). *Plectranthus amoenus* and *P. thalassoscopicus* (Lamiaceae), new species from north-eastern Queensland, Australia. *Austrobaileya* 4(4): 653–660. *Plectranthus amoenus* and *P. thalassoscopicus* are described and illustrated. Affinities and conservation status of both species are discussed. *P. amoenus* is considered a Vulnerable species and *P. thalassoscopicus* a Rare species under the Queensland Nature Conservation Act 1992.

Keywords: *Plectranthus amoenus*; *Plectranthus thalassoscopicus*; Lamiaceae; Australia; Queensland.

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## Introduction

New taxa of *Plectranthus* L'Herit. continue to be discovered in Queensland and the opportunity is taken here to describe two new species subsequent to those previously enumerated (Forster 1994). Exploration of new areas and the small islands of suitable substrate that occur within them are likely to result in further discoveries as is the case with both of the taxa named herein. As discussed previously, speciation in *Plectranthus* has occurred repeatedly in these sorts of habitats (Forster 1994). The description of so many novelties in recent years for Queensland *Plectranthus* has resulted in occasional scepticism by referees and botanists who restrict their studies to dried specimens without recourse to field studies or examination of live material cultivated under similar conditions. While the process of gradual publication of these new taxa may have resulted in the impression that most taxa are extremely restricted in distribution, it may have partially obscured the reality that there are also many species that are wide ranging in distribution (e.g. *P. graveolens* R.Br., *P. parviflorus* Willd., *P. argentatus* S.T.Blake and *P. suaveolens* S.T.Blake). These wide ranging species are also restricted in their occurrence to particular habitats, but because the islands of habitat are relatively widespread and not too disjunct from

one another, they cover more geographical area. The genus *Plectranthus* is still poorly collected within Australia and further new taxa can be expected.

### 1. *Plectranthus thalassoscopicus*

In 1993, Keith Halfpapp of Mareeba discovered and collected cuttings of a succulent species of *Plectranthus* on a 'bushwalk' at Mt Bell, Malbon Thompson Range, east of Gordonvale in north-eastern Queensland. This material was cultivated both at Mareeba and Brisbane where examination of subsequent flowering material revealed it to be undescribed. Description of *P. thalassoscopicus*, prior to an eventual full revision of the Australian taxa, is necessary to enable its inclusion in an account of the world's succulents being published by the International Organisation for Succulent Plant Study (IOS) in Zürich.

#### *Plectranthus thalassoscopicus* P.I.Forst., sp.

**nov.** affinis *P. aprepto* S.T.Blake et *P. pulchello* P.I.Forst. autem ab illo foliis succulentis non nitidis, lamina foliorum sine trichomatibus glandulosis infra, cum glandulis sessilibus aurantiacis, ab hoc foliis dentibus 13 vel 14 in quoque margine praeditis, lamina foliorum cum glandulis sessilibus aurantiacis, ab uterque bracteis triangulari-ovatis, 2.2–2.4 mm longis, 2.2–2.5 mm latis, differt. **Typus:** Queensland: COOK DISTRICT: North Bell

Peak summit area, Malbon Thompson Range, 17°05'S, 145°52'E, 12 Nov 1995, P.I. Forster 18048, R.L. Jago & R. Jensen (holo: BRI [2 sheets]; iso: K, MEL, QRS).

Subshrub to 60 cm high; foliage slightly aromatic when crushed; non-glandular and glandular trichomes colourless; sessile glands 8-celled, orange. Roots fleshy-fibrous. Stems square in cross-section, semi-erect to straggling, succulent, the lower parts up to 20 mm diameter, pink-purple; seedling-derived stems without thickened tuberous base, with non-glandular trichomes antrorse, sparse, 2–8-celled and up to 2 mm long, glandular trichomes scattered and sessile glands absent. Leaves discolorous, petiolate; petioles 10–35 mm long, 2.5–4 mm wide, ± flattened on top with non-glandular trichomes antrorse, sparse, 2–8-celled and up to 2 mm long, glandular trichomes scattered and sessile glands absent; lamina narrow-ovate to ovate, succulent, 20–100 mm long, 14–80 mm wide, crenate with 13 or 14 teeth up to 4 mm long on each margin, secondary teeth present; tip acute; base rounded to truncate; upper surface grey-green with veins impressed, non-glandular trichomes divaricate, sparse, 4–8-celled and up to 1.5 mm long, glandular trichomes dense, sessile glands absent; lower surface pale green, veins raised, with non-glandular trichomes antrorse, sparse to dense, 4–8-celled and up to 1.5 mm long, glandular trichomes absent and orange-coloured sessile glands dense. Inflorescence up to 350 mm long, 1–5-branched from near base; verticillasters 8–14-flowered, up to 17 mm apart; pedicels 3–4 mm long, c. 0.2 mm diameter with non-glandular trichomes antrorse, sparse, 2–4-celled and up to 0.2 mm long, glandular trichomes scattered and sessile glands generally absent although there may be an occasional scattered one; cymes sessile; axis square in cross-section with non-glandular trichomes sparse, antrorse, 2–8-celled and up to 1 mm long, glandular trichomes scattered and sessile glands absent; bracts triangular-ovate, 2.2–2.4 mm long, 2.2–2.5 mm wide, not forming a coma with non-glandular trichomes antrorse, sparse, 4–6-celled and up to 1 mm long, glandular trichomes absent and sessile glands scattered. Flowering calyx 2.8–3 mm long, with non-glandular trichomes antrorse, sparse, 2–4-celled and up to 0.4 mm long, glandular trichomes

scattered and sessile glands sparse. Fruiting calyx 4–4.6 mm long; upper lobe orbicular-ovate, 2.6–3 mm long, 2.8–3 mm wide; lateral lobes lanceolate, 2–2.2 mm long, 1.2–1.4 mm wide; lower lobes lanceolate-falcate, 2–2.4 mm long, 0.8–1 mm wide. Corolla 9–11 mm long, lilac; tube 4.5–5 mm long, curved at 90–100° 2–2.3 mm from base, slightly inflated upwards, glabrous apart from scattered, divaricate 2–4-celled non-glandular trichomes up to 0.2 mm long; upper lobes ± orbicular, erect to recurved, 2.2–2.8 mm long, 2.5–3 mm wide, non-glandular trichomes sparse, divaricate, 2–4-celled and up to 0.4 mm long, glandular trichomes absent, sessile glands sparse; lateral lobes oblong, 2–2.5 mm long, 1–1.2 mm wide, glabrous apart from an occasional sessile gland; lower lobe ovate, 5–6 mm long, 4–5.5 mm long, non-glandular trichomes sparse, divaricate, 2–4-celled and up to 0.4 mm long, glandular trichomes absent, sessile glands sparse. Filaments filiform, 7–9 mm long, c. 0.2 mm diameter, lilac, fused for 4–4.5 mm from base; anthers c. 0.4 mm long and 0.3 mm wide. Style filiform, 7–9 mm long, lilac, bifid for c. 0.4 mm. Nutlets ± circular in outline, ± flattened, 0.9–1 mm long, 0.9–1 mm wide, 0.6–0.7 mm thick, glossy brown, smooth. **Fig. 1.**

*Additional specimens examined:* Queensland. COOK DISTRICT: Bell Peak, 17°05'S, 145°52'E, 1993, Halfpapp s.n. (BRI, QRS); ditto, Jul 1995, Jago 3533 (BRI).

**Distribution and habitat:** *Plectranthus thalassoscopicus* is known only from the type locality at 800–950 m altitude. While much of the natural vegetation in this area is composed of rainforest, many of the higher mountain peaks have small areas of rock outcrops and pavements, often with a highly endemic flora. *P. thalassoscopicus*, as with most *Plectranthus* species in Australia, grows on rock outcrops and pavement. The rock is granite at the type locality.

**Notes:** *P. thalassoscopicus* belongs to the most highly diverse group of *Plectranthus* in Australia, i.e. those that are perennial subshrubs or shrubs, with inflorescences branched 1–7 times near the base, sessile cymes, and bracts not forming a conspicuous woolly coma (Group 5 of Forster 1994). Species morphologically similar to *P. thalassoscopicus* in this group are

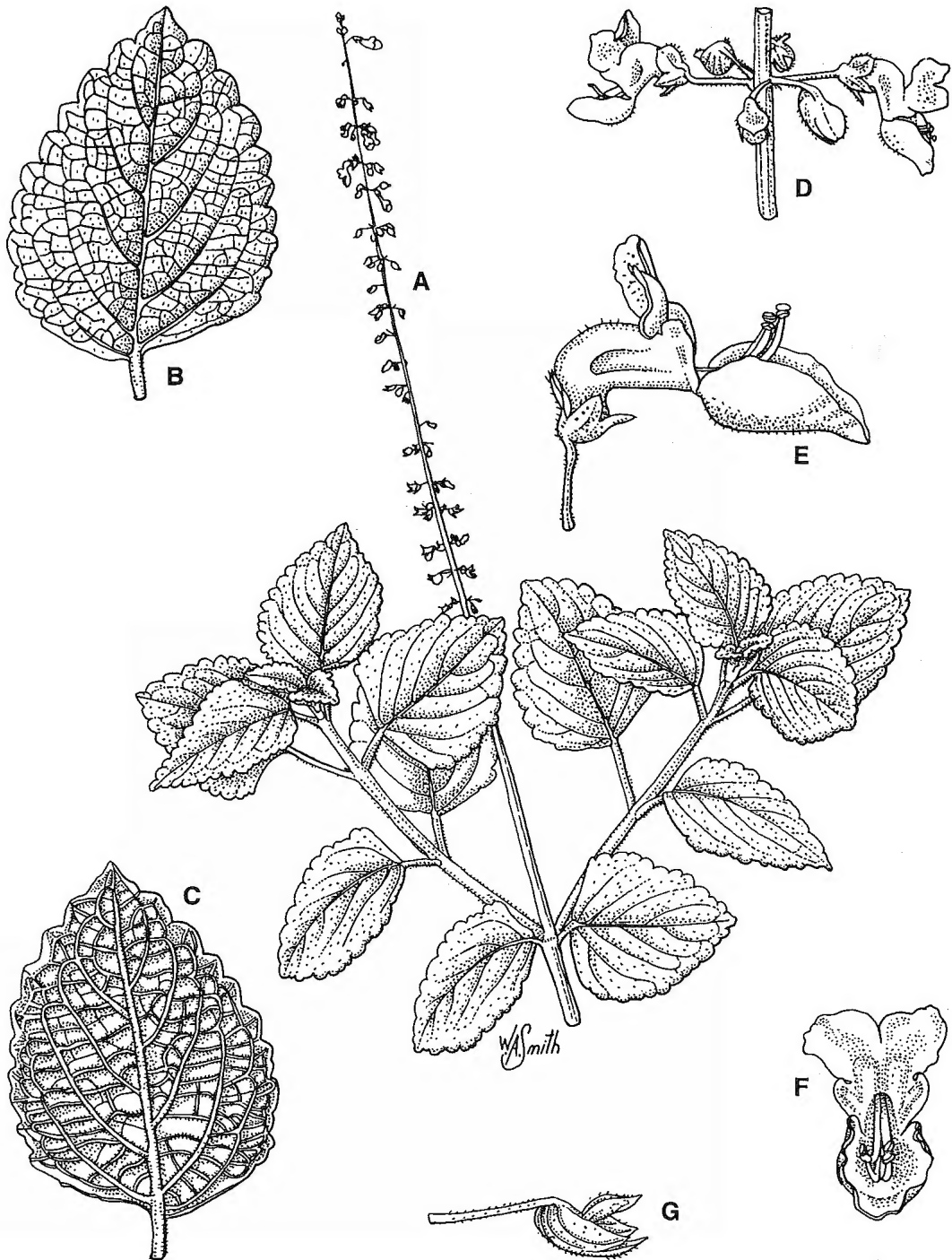


Fig. 1. *Plectranthus thalassoscopicus*. A. flowering stem  $\times 0.5$ . B. adaxial leaf surface  $\times 1$ . C. abaxial leaf surface  $\times 1$ . D. verticillaster  $\times 2$ . E. side view of flower  $\times 5$ . F. face view of flower  $\times 5$ . G. side view of calyx  $\times 5$ . All from live material of *Halfpapp* s.n. (BRI). Del. W. Smith.

*P. apreptus* S.T.Blake and *P. pulchellus* P.I.Forst. *P. apreptus* occurs in moist lowland sites (up to 550 m altitude according to Blake 1971) on granite near Cairns and differs most noticeably from *P. thalassoscopicus* in its habit (a herb to 40 cm high with fleshy stems and fleshy leaves), leaf morphology (thin, upper surface glossy), leaf indumentum (lower leaf surface with glandular trichomes, sessile glands yellow) and bracts (orbicular-ovate to ovate, 1.2–1.8 mm long). *P. pulchellus* occurs on sandstone clifflines some 650 km north-north-west to the locality of *P. thalassoscopicus* and differs noticeably in habit (a herb or subshrub to 40 cm high), leaf morphology (margins with 6–12 teeth), indumentum cover (lower surface without sessile glands) and bracts (broadly ovate, 1.7–2 mm long, 1.5–1.7 mm wide).

**Conservation status:** As yet *P. thalassoscopicus* appears to be an uncommon plant in nature. Mt Bell is an isolated peak in the Malbon Thompson Range and had not been botanically explored prior to 1993. Other high points to the north and south in this range remain unexplored botanically and it is possible that the species is not restricted to this single locality. At present there are no obvious threats to this plant. An appropriate conservation coding is 'R' (Rare) as defined by the Queensland *Nature Conservation Act 1992*.

**Etymology:** Named from the Greek *thalassa* 'the sea' and *skopos* 'a watcher' (cf. Johnson 1989), referring to the habitat of this species facing the sea.

In my key to the species of *Plectranthus* in Queensland (Forster 1994), *P. thalassoscopicus* will key to couplet 29 where its combination of characters will contradict the key. *P. thalassoscopicus* can be keyed if another couplet is added -

29. Stems, leaves and racemes with dense glandular trichomes . . . . . **P. dumicola**  
 Stems, leaves and racemes with scattered glandular trichomes . . . . . 29a
- 29a. Leaf undersurface with glandular trichomes . . . . . **P. apreptus**  
 Leaf undersurface without glandular trichomes . . . . . 30
30. Leaf undersurface without sessile glands . . . . . **P. pulchellus**  
 Leaf undersurface with dense, orange-coloured sessile glands . . . . . **P. thalassoscopicus**

## 2. *Plectranthus amoenus*

It seems remarkable that this species, which occurs in such close proximity to Atherton and Herberton, has escaped notice until relatively recently.

***Plectranthus amoenus*** P.I.Forst., **sp. nov.**  
 affinis *P. graveolenti* R.Br. a qua foliis marginibus crenatis cum dentibus 32–44 (non serratis cum dentibus 10–30), trichomatibus glandulosis in foliorum pagina supra absentibus (non trichomatibus sparsis usque dispersis), bracteis rhomboideis (non obovatis usque

late obovatis) et multo majoribus (8–10.5 mm longis et 5.5–7.5 mm latis non 1.5–4.8 mm longis et 1.5–4 mm latis), corollae lobis superioribus amplioribus (3–3.8 mm longis et 2.5–3.2 mm latis non 1–2.2 mm longis et 1–2.2 mm latis) corollae lobo inferiore suborbiculare (non oblongo-ovato) latiorique (5.8–8 mm lato non 2.4–5.5 mm lato), differt. **Typus:** Queensland. COOK DISTRICT: Baldy Mt, Atherton, Jun 1991, *P.I.Forster* 8488 (holo: BRI [2 sheets]; iso: MEL, QRS).

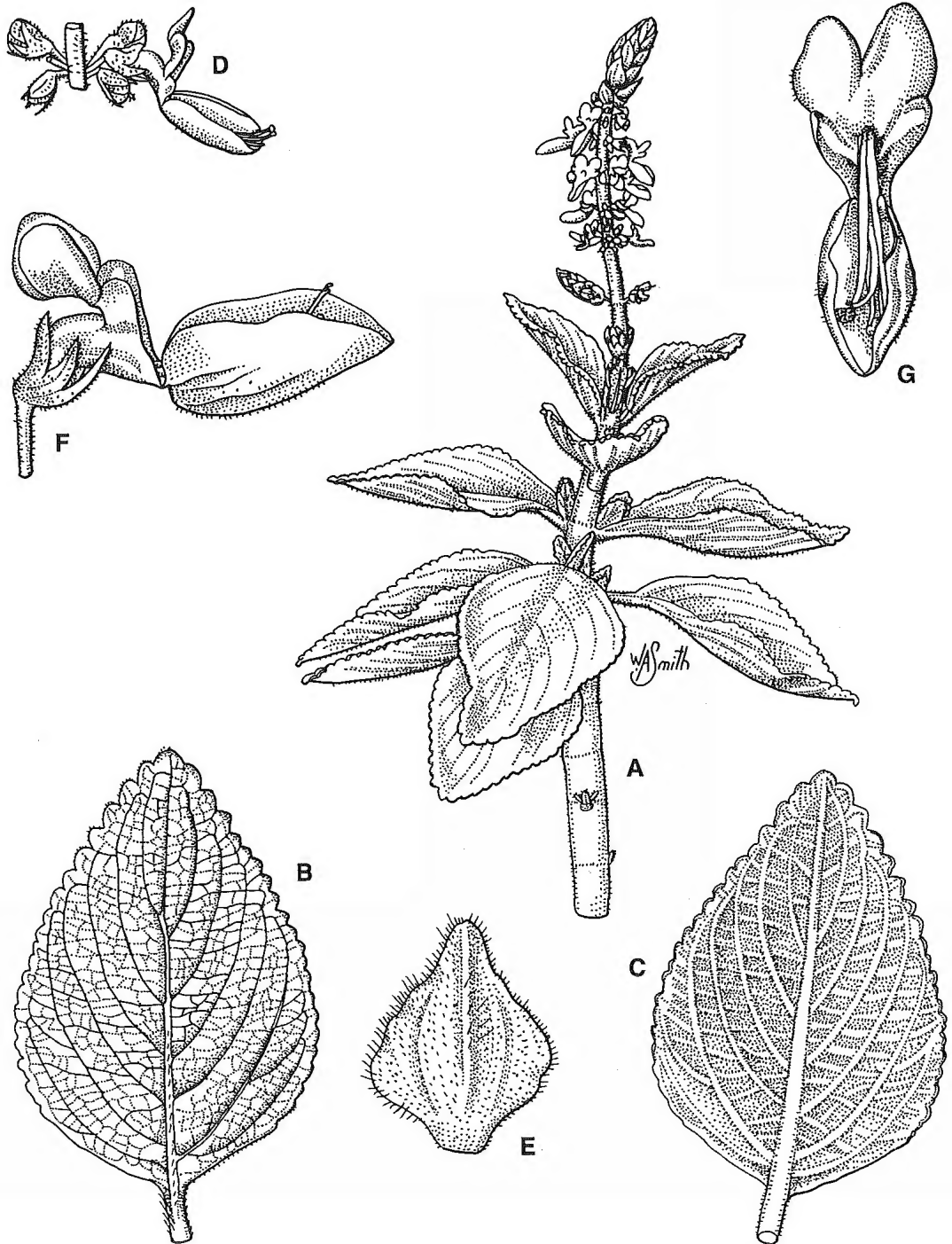


Fig. 2. *Plectranthus amoenus*. A. flowering stem  $\times 0.6$ . B. adaxial leaf surface  $\times 1$ . C. abaxial leaf surface  $\times 1$ . D. verticillaster  $\times 2$ . E. floral bract  $\times 4$ . F. side view of flower  $\times 4$ . G. face view of flower  $\times 4$ . All from live material of Forster 8488 (BRI). Del. W. Smith.

Subshrub to 50 cm high; foliage with faint sweet scent when crushed, clammy to touch; non-glandular and glandular trichomes colourless, sessile glands 8-celled and orange coloured. Roots fibrous. Stems square in cross-section, erect, fleshy with the lower parts  $\pm$  woody and up to 10 mm diameter, green, with non-glandular trichomes divaricate, scattered, 6–8-celled and up to 1.5 mm long, glandular trichomes sparse and sessile glands scattered. Leaves discolorous, petiolate; petioles 2–14 mm long, 1.8–3 mm wide, grooved on top with non-glandular trichomes divaricate, scattered, 6–10-celled and up to 2 mm long, glandular trichomes dense and sessile glands scattered; lamina ovate, fleshy, 10–95 mm long, 9–60 mm wide, crenate with 16–22 teeth 1.5–3.5 mm long on each margin, widest above middle, secondary teeth usually present; tip acute; base cuneate to rounded; upper surface green, veins impressed, with non-glandular trichomes antrorse, dense, 4–6-celled and up to 0.5 mm long, glandular trichomes absent and sessile glands sparse; lower surface silver-green, veins raised, with non-glandular trichomes divaricate, dense, 4–6-celled and up to 1 mm long, glandular trichomes sparse and sessile glands dense. Inflorescence up to 180 mm long, comprising 1–3 branches from near the base; verticillasters 18–20-flowered, up to 15 mm apart; pedicels 2.5–3 mm long, 0.4–0.5 mm diameter with non-glandular trichomes absent, glandular trichomes sparse and sessile glands absent; cymes sessile to shortly pedunculate to 2 mm long; axis square in cross-section, with non-glandular trichomes divaricate, scattered, 4–6-celled and up to 2.5 mm long, glandular trichomes dense and sessile glands scattered; bracts rhomboid, 8–10.5 mm long, 5.5–7.5 mm wide, not forming a coma, with non-glandular trichomes divaricate, scattered, 4–8-celled and up to 1 mm long, glandular trichomes dense and sessile glands scattered. Flowering calyx 3.5–4.5 mm long, with non-glandular trichomes divaricate, sparse, 4–6-celled and up to 0.4 mm long, glandular trichomes dense and sessile glands scattered. Fruiting calyx 4–4.8 mm long; upper lobe broadly ovate, 2.8–3 mm long, 2.4–2.6 mm wide; lateral lobes lanceolate, 2–2.2 mm long, 1–1.2 mm wide; lower lobes lanceolate, 2.5–3 mm long, 0.5–0.7 mm wide. Corolla 9–15 mm long, lilac-purple; tube 4.6–5.5 mm long,

strongly curved at 90–120° 2–2.5 mm from base, slightly inflated upwards, glabrous; upper lobes suborbicular to ovate,  $\pm$  erect, 3–3.8 mm long, 2.5–3.2 mm wide, with non-glandular trichomes divaricate, sparse, 2–4-celled and up to 0.2 mm long, glandular trichomes sparse and sessile glands scattered; lateral lobes oblong, 2.8–3 mm long, 1.3–1.5 mm wide, glabrous; lower lobe suborbicular, 6–8 mm long, 5.8–8 mm wide, with non-glandular trichomes divaricate, scattered, 2–4-celled and up to 0.2 mm long, glandular trichomes scattered and sessile glands scattered. Filaments filiform, 7–13 mm long, c. 0.3 mm diameter, lilac, fused for 3–4.5 mm from base; anthers c. 0.5 mm long and 0.4 mm wide. Style filiform, 12–13 mm long, lilac, bifid for c. 0.3 mm. Nutlets  $\pm$  circular in outline,  $\pm$  flattened, 0.9–1 mm long, 0.9–1 mm wide, c. 0.5 mm thick, dark brown, smooth. **Fig. 2.**

**Additional specimens examined:** Queensland. Cook DISTRICT: Carrington Falls, Herberton Range, May 1991, *Forster* 8366 (BRI, MEL, QRS); Herberton Weir, Jan 1993, *Forster* 12815 & *Bean* (BRI). **Cultivated:** Indooroopilly (ex Toy Creek, W of Herberton), Nov 1994, *Forster* 15892 (BRI).

**Distribution and habitat:** *Plectranthus amoenus* is known from the area between Atherton and Herberton on the Atherton Tableland in the ‘Wet Tropics’ of north-east Queensland. Plants grow on granite rock outcrops and pavements in open forest dominated by *Syncarpia glomulifera* (Sm.) Nied. and *Eucalyptus resinifera* Sm. Other *Plectranthus* species in the habitat are *P. glabriflorus* P.I.Forst. and *P. amicorum* S.T.Blake.

**Notes:** *Plectranthus amoenus* also belongs to Group 5 of Forster (1994) and is closely allied to *P. graveolens* R.Br. but differs in a number of important vegetative and floral characters. These are listed in Table 1.

*P. graveolens* and *P. amoenus* are closely distributed but allopatric in the ‘Wet Tropics’ with populations of the former near Davies Creek (Voucher: *Forster* 17347(BRI)) and Danbulla (Voucher: *Forster* 15593(BRI)). Both taxa are distinctive in vegetative appearance and have a different scent to the crushed foliage. These differences, as well as the floral ones, are maintained when the plants are grown in cultivation under similar conditions.

**Conservation status:** *Plectranthus amoenus* has rarely been collected and appears to be restricted to a relatively small geographic area. At the Herberton Weir locality, this species was uncommon whereas it was relatively common at the other two cited localities above. There is continuing development of this area for housing, quarrying and water storage dams and these activities threaten not only *P. amoenus* but other rare or threatened taxa such as

*P. glabriflorus* P.I.Forst. and *Tylophora rupicola* P.I.Forst. (Forster 1992). A proposed conservation coding for *P. amoenus* species is 'V' (Vulnerable) as defined under the Queensland *Nature Conservation Act 1992*.

**Etymology:** The specific epithet is derived from Latin *amoenus* 'pleasant, delightful' and refers to the attractive form of this species.

**Table 1. Important morphological differences between *Plectranthus amoenus* and *P. graveolens***

Character	<i>P. amoenus</i>	<i>P. graveolens</i>
leaf lamina margins	crenate 32–44 teeth	serrate 10–30 teeth
glandular trichomes on upper leaf lamina surface	absent	scattered to sparse
bract shape	rhomboid	obovate to broadly obovate
bract size (mm)	8–10.5 × 5.5–7.5	1.5–4.8 × 1.5–4
corolla upper lobes size (mm)	3–3.8 × 2.5–3.2	1–2.2 × 1–2.2
corolla lower lobe shape	suborbicular	oblong-ovate
width (mm)	5.5–8	2.4–5.5

*P. amoenus* will key to couplet 9 in the key of Forster (1994) if the sparse density of glandular trichomes on the stem and lower leaf surfaces is accounted for in couplet 4 which lists alternatives as dense or scattered. To distinguish *P. amoenus* from *P. torrenticola* P.I.Forst. and *P. graveolens*, couplet 9 should be replaced with the following -

9. Trichomes silver-coloured; verticillasters 10–12-flowered . . . . . **P. torrenticola**  
 Trichomes uncoloured; verticillasters 12–20-flowered . . . . . 9a  
 9a. Leaf lamina margins with 32–44 teeth; floral bracts rhomboid . . . . . **P. amoenus**  
 Leaf lamina margins with 10–30 teeth; floral bracts obovate to broadly  
 obovate . . . . . **P. graveolens**

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Thanks to K. Halfpapp for bringing *P. thalassoscopicus* to my attention. R.L. Jago for a further collection of *P. thalassoscopicus* and G. and N. Sankowsky for a collection of *P.*

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